

RIVERS AND FLOODS

[River and Flood Division, MONTROSE W. HAYES in charge]

By W. J. MOXOM

Flood producing rains, ranging in amount from 6 to 9 inches, fell on the night of June 30-July 1 in Texas in the central portions of the Colorado and Guadalupe Basins, and over the northern tributaries of the Neuces River. The flood in the Guadalupe River was severe, and was prolonged by continued rains. Crest stages below Gonzales, Tex., were the highest of record. The estimated losses were very large, amounting to approximately \$2,130,000, of which nearly \$1,500,000 was to matured and prospective crops. About 20 persons were drowned in the rapidly-rising creeks tributary to the main stream. Nine members of two families were lost in Plum Creek in Hays and Caldwell Counties. A freight train on the Missouri Pacific Railroad was wrecked in a creek near Kyle, Tex., resulting in the loss of two lives. The flood in the Colorado River was of short duration. The losses were not great; they were estimated at \$37,000. In the Neuces River the rise was of moderate intensity, with crests 3 to 4 feet above flood stage, but the losses were considerable; they aggregated slightly more than \$250,000, most of which was to matured and prospective crops.

Heavy wind and rainstorms in the Salt River Valley in Arizona on July 24, 25, and 26 caused rather severe local inundations on several creeks, with total losses estimated at \$30,000. Two lives were lost.

Flood stages were exceeded at Fort Sumner, N. Mex., on the Pecos River; at Brownsville, Tex., on the Rio Grande, and at Fayetteville, Tenn., on the Elk River. The losses from these overflows were small.

Falling stages prevailed throughout most of the Mississippi System, and the lowest July stages of record occurred at many stations. In the Willamette and Columbia Basins the monthly mean stage was below the average at all gaging stations.

Table of flood stages during July 1936

[All dates in July, unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Ohio Basin					
Elk: Fayetteville, Tenn.....	Feet 14	4	5	Feet 22.3	4
Arkansas Basin					
Purgatoire: Higbee, Colo.....	4	30	30	4.0	30
WEST GULF OF MEXICO DRAINAGE					
Colorado:					
Columbus, Tex.....	24	2	3	31.7	3
Wharton, Tex.....	26	3	4	32.9	4
Guadalupe:					
Gonzales, Tex.....	20	1	5	38.2	1
Victoria, Tex.....	21	1	9	30.7	4
		20	21	22.8	20
Nueces:					
Cotulla, Tex.....	15	5	9	19.2	7
Three Rivers, Tex.....	37	2	4	40.0	3
Pecos: Fort Sumner, N. Mex.....	5	12	12	8.0	12
		3	4	18.8	3
Rio Grande: Brownsville, Tex.....	18	17	18	19.3	17

WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNEHILL in charge]

NORTH ATLANTIC OCEAN, JULY 1936

By H. C. HUNTER

Atmospheric pressure.—Barometric pressure averaged less than normal during July over most of the North Atlantic Ocean and the adjacent shores. However, the southeast portion had somewhat greater average pressure than normal, the readings being notably high there from about the 6th to 16th, and again at the end of the month.

The highest pressure thus far reported was 30.64 inches, recorded during the forenoon of the 29th, near 44° N., 25° W., on the Dutch motor-tanker *Rotterdam*. The lowest pressure was 28.94 inches, on the British steamship *Badjestan*, about 2 p. m. the 2d, in approximately 56° N., 27° W.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, July 1936

Station	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Julianehaab, Greenland...	29.84	+0.04	30.10	15, 16	29.50	3
Reykjavik, Iceland.....	29.81	— .03	30.15	29	29.38	6
Lerwick, Shetland Islands...	29.72	— .08	30.03	28	29.26	15
Valencia, Ireland.....	29.81	— .17	30.39	30	29.26	23
Lisbon, Portugal.....	30.13	+ .11	30.27	9, 31	29.83	22
Madeira.....	30.13	+ .08	30.27	6	30.03	16, 21, 22, 26
Horta, Azores.....	30.31	+ .04	30.66	29, 30, 31	30.06	25
Belle Isle, Newfoundland...	29.77	— .12	30.16	24	29.30	1
Halifax, Nova Scotia.....	29.87	— .08	30.18	22	29.48	15
Nantucket.....	29.87	— .11	30.30	31	29.53	14
Hatteras.....	29.94	— .07	30.23	31	29.69	19
Bermuda.....	30.13	— .05	30.28	4	29.93	27, 28
Turks Island.....	30.04	— .03	30.08	1, 4, 17, 27	29.97	7, 24
Key West.....	30.01	— .02	30.12	4	29.79	29
New Orleans.....	30.00	.00	30.21	6	29.74	27

NOTE.—All data based on a. m. observations only, with departures compiled from differences between observations and normal values.

Cyclones and gales.—Winds attained gale force on various dates over different parts of the ocean. About 300 miles south-southeast of Cape Race, during the forenoon of the 1st, the American liner *President Roosevelt* met a small-area storm of marked intensity, the wind reaching force 11, the only reported instance of force so great over the North Atlantic during the month. This storm formed the southern portion of a vast low, which advanced to eastward, with the result that other vessels, especially some near or to northward of the 50th parallel, had fresh to strong gales near midocean on the 1st or the 2d.

About the middle of the month several vessels met fresh to strong gales along or near the eastern half of the steamship lanes as far as the English Channel; while from the 17th to 20th, gales of similar force were encountered from the waters off the Carolinas to the southern shore of Newfoundland.

Strong trade winds.—During the first week unusually strong trades were noted by a few vessels in the Caribbean Sea and in the general region of the Bahamas. The British motorship *Nairnbank*, when near the Windward Passage on the 3d, encountered a whole gale (force 10), which is seldom experienced in such waters save in connection with a tropical disturbance. Near the Canary Islands the northeast trades were decidedly strong from the 9th to 12th. In Puerto Rican waters the trade winds were stronger than usual on the 21st; and over parts of the northern Caribbean Sea just before the month ended.

Tropical disturbances.—Elsewhere in this issue will be found the description of two tropical storms, one of which affected the Bahamas, Florida, and adjacent waters dur-